

Morgal-11-CIP
PATENT



Date: March 18, 2009
Substitute for Reply Brief Mailed March 16, 2009

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: **Richard Morgal**

Confirmation No.: **1563**

Serial No.: **10/821,593**

Group Art Unit: **1795**

Filed: **April 9, 2004**

Examiner: **Gardner, Shannon M.**

For: **METHOD AND APPARATUS FOR SOLAR ENERGY COLLECTION**

In accordance with 37 C.F.R. 1.8, I hereby certify that this correspondence and all its attachments are being deposited on **Wednesday, March 18, 2009** with the U.S. Postal Service with sufficient postage as First Class mail in an envelope addressed to: Mail Stop Appeal Brief - Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

William C. Boling 3/18/2009
William C. Boling Date

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL LETTER FOR SUBSTITUTE REPLY BRIEF

Sir:

Attached hereto is a Substitute Reply Brief (**11 pages**) to replace the Reply Brief that was timely filed March 16, 2009 in response to an Examiner's Answer issued January 16, 2009 regarding the above-identified application. Although the Reply Brief of March 16, 2009 was fully complete and responsive to the Examiner's Answer, this Substitute Reply Brief corrects minor errors of terminology and clarifies associated remarks set forth in the Reply Brief to reduce the possibility of confusion. The Examiner and the Panel are respectfully requested to consider this Substitute Reply Brief instead of the Reply Brief mailed March 16, 2009.

Respectfully submitted,

Date: 3/18/2009
March 18, 2009

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Commissioner for Patents
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Alexandria, VA 22313-1450

SUBSTITUTE REPLY BRIEF

Sir:

This Substitute Reply Brief is submitted to replace a Reply Brief in respect of the subject application that was mailed March 16, 2009. The Substitute Reply Brief corrects terms in the Reply Brief of March 16, 2009, which could have caused confusion as originally submitted, and also clarifies associated remarks. The Examiner and the Panel are respectfully requested to consider this Substitute Reply Brief in place of the Reply Brief that was timely filed on March 16, 2009. The substantive content is not significantly altered.

Status of Claims is indicated on page 2.

Grounds of Rejection to be Reviewed On Appeal are identified on page 3.

Argument begins on page 4.

STATUS OF CLAIMS

Claims 1-14 are pending, and all stand rejected over Cluff in view of Laing.

Appeal is taken of the outstanding rejection of each of Claims 1-14.

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

The following issues are presented for review:

Whether Claims 1-4, 7-10 and 13-14 are unpatentable under 35 USC 103(a) as obvious over Cluff (US 4,771,764) in view of Laing (US 5,445,177).

Whether Claims 5-6 and 11-12 are unpatentable under 35 USC 103(a) as obvious over Cluff in view of Laing and further in view of Genequand (US 4,238,246).

ARGUMENT

Appellant's independent Claims 1 and 8 stand rejected as obvious over Cluff in view of Laing. The Examiner's Answer sets forth a rationale that purports to specifically identify each feature required by, *e.g.*, Claim 1 in subject matter disclosed by Cluff or Laing. The Examiner's rationale in support of the rejection relies on a number of specific assertions to the effect that particular disclosure of Cluff or Laing constitutes an example of a particular feature as it is required by one of the independent claims. However, the Appellant respectfully contends that many of such specific assertions are incorrect, and that the rationale set forth by the Examiner consequently fails to support a conclusion that either of these claims is obvious over Cluff in view of Laing. The Appellant's contentions are supported by the following remarks, which demonstrate errors in numerous specific assertions made by the Examiner.

The first remarks set forth below address assertions in respect of apparatus Claim 1, and subsequent remarks address the Examiner's assertions in respect of method Claim 8.

Examiner's Mistaken Assertions In Respect Of Claim 1

The Examiner relies on a number of specific assertions purporting to support a conclusion that Claim 1 is obvious over Cluff in view of Laing. The following remarks demonstrate that at least five of those specific assertions are mistaken, thereby requiring a conclusion that the Examiner's rationale entirely fails to support the stated ground of rejection.

First Mistaken Assertion. In a first specific assertion, the Examiner states that the solar converter apparatus of Cluff comprises (underlining added for emphasis): "a) a support structure (32) for floating on a liquid bath (34), the structure having: i) a substantially fixed relationship to an incoming light axis that is parallel to useful incoming light."

The Examiner appears to incorrectly believe that the support platform (32) of Cluff is comparable to a support structure as required by Appellant's claims. Careful review of Figure 1 of Cluff reveals that the support platform (32) has a large flat surface, as expected for a platform. The platform (32) is circular, covering most of the pond 34 of Figure 1. It floats flat on pond 34, and is therefore always parallel to the surface of the earth beneath it (more precisely, it is perpendicular to a line from the center of the earth). The platform (32) is not tilted to face the sun. Platform (32) is not, itself, a solar collector, and does not have within it any photovoltaic or other solar energy conversion device. Instead, platform (32) provides support for "an array 31 of

absorbers" (col. 3 line 37). The array 31 comprises (emphasis added) "a focusing flat plate collector panel 40 hingedly mounted on [the] platform" (col. 4 lines 17-19)¹.

As may be understood upon consideration of Figure 1, the platform (32) is rotated to adjust for the azimuth (or compass direction) of the sun (see, *e.g.*, col. 3 lines 44-51, particularly line 51). However, the platform itself is certainly not tilted at an angle to point at the sun as the elevation of the sun changes throughout the day. Tilting would require that the large platform be raised on one side, and would drive the other side under water. Instead of tilting the platform (32), the angle of collector panels 40 (disposed on the flat top of platform 32) is adjusted to track the elevation of the sun (*e.g.*, col. 4 lines 52-61, col. 6 lines 3-10). While the panels (40) are constantly pointed at the sun and thus have "a substantially fixed relationship to an incoming light axis," the same is not true for the platform (32). To the contrary, the relationship of the light axis to the platform (32) changes constantly through the day. In particular, the elevation angle of the light axis from the sun, with respect to the platform (32), changes continuously throughout the day.

Thus, the Examiner is mistaken to assert that "the platform (32) [has] a substantially fixed relationship to an incoming light axis." Were this assertion correct, the angle of collector panels 40 would not change with respect to the platform 32.

Instead, the platform 32 is merely rotated about its center axis (a line perpendicular to the surface of the platform 32 that goes through the center of the platform). Because the platform 32 remains flat on the pond, its center axis is, at all times, a line going through the center of the earth. As the day progresses, the elevation of the sun changes constantly with respect to that axis line. Clearly, the sun is at an ever-changing angle with respect to the platform. Accordingly, the platform 32 does not have a substantially fixed relationship to an incoming light axis. This first specific assertion is thus incorrect, and therefore does not support the ground of rejection.

Second Mistaken Assertion. In a second specific assertion, the Examiner states: "iii) depicted in Figure 13 and 14 are guidance interface (32) features connecting the support

¹ The platform is correctly item 32. Cluff once refers incorrectly to "platform 33" (col. 4 line 19), which is clearly a typographical error, because the items illustrated as items 33 in Figure 2 are clearly "flat plate solar lenses 33 that redirect the solar rays" as described at col. 3 lines 40-41, and "lenses 33 of the panels" as described at col. 4 lines 61-62. Cluff also once refers to "Platform 36" (col. 3 line 61), which is clearly another typographical error, because Figure 1 shows item 36 to be a motor, as it is described at, *e.g.*, col. 3 line 49 and col. 4 line 65. The platform is properly item 32, as it is illustrated in Figures 1 and 7, and as it is correctly described at col. 3 lines 38 and 44, col. 4 line 41, and col. 6 lines 5-6 and 25.

structure/system of connecting rods to a guidance frame (63) that aligns the elevation rotation axis (64) at the fixed azimuth alignment angle to an azimuth of the source of incoming light axis with the source of incoming light/solar tracking (col.6; lines:40-47)."

This assertion includes two errors. First, the guidance interface features of Figures 13 and 14 are not [support platform] (32). Second, Figures 13 and 14 do not depict features connecting the support structure to a guidance frame, as required. Claim 1 requires in relevant part (emphasis added): "iii) guidance interface features connecting the support structure to a guidance frame." The Examiner states that the required "support structure" is exemplified by the "support platform (32) of Figure 1." However, Figures 14 and 15 include no structure even remotely comparable to support platform (32). As such, the guidance/interface features shown in Figures 13 and 14 do not in any way connect the Examiner's chosen "support structure" to a guidance frame.

The Examiner has jumped from a system illustrated in Figure 1 (which is literally based upon support platform 32) to a system illustrated in Figures 13 and 14 (which does not have a support platform 32). These two systems are extremely different. Appellant's Claim 1 requires a support structure having a number of specific characteristics: (a) a support structure ...; (b) a photovoltaic disposed within the support structure ...; (c) a lens coupled to the support structure; and cooling that is effected through a wall of the support structure. The Examiner has asserted that the support platform (32) of Figure 1 corresponds to the support structure required by the claims. A completely different system (Figures 13, 14) that has no support structure (32) cannot be properly combined with the system of Figure 1. This second specific assertion is therefore incorrect at least because it illogically mixes two incompatible systems. The Examiner adds to the confusion by mislabeling features of Figures 13 and 14 as "guidance/interface (32) features."

Third Mistaken Assertion. In a third specific assertion, the Examiner states (underlining added for emphasis): "b) depicted in Figure 1 is at least one photovoltaic conversion device (42) mounted within the support structure (32) and adapted for converting concentrated sunlight into electricity (col.5; lines: 52-56)."

Figure 7 provides detail of Figure 1 that clearly reveals the error in this third assertion. Photovoltaic devices 42 are disposed within collector panels 40, which in turn are mounted on top of platform 32. There is nothing within the support platform (32) of Cluff except flotation

and structural material (see col. 3 line 61 to col. 4 line 5)². Far from being "within" the platform 32, the photovoltaic devices are within an entirely different structure (collector panel 40), which is "arranged on [the top of] the platform 32" (col. 4 lines 39-41). Thus, the third assertion is incorrect. Accordingly, the rejection improperly relies on yet a third improper assertion.

Fourth Mistaken Assertion. In a fourth specific assertion, the Examiner states that Cluff discloses (underlining added for emphasis): "c) a lens (33) coupled to the support structure for guiding light that is parallel to the incoming light axis in Figure 1 and is received over a receiving region (40) toward a conversion device (42) that is mounted within the support structure (32) ..." The error in this fourth specific assertion is similar to the error described with respect to the third specific assertion: there is no conversion device, (42) or otherwise, mounted within the support platform (32). Support platform (32) is nothing more than a plain, floating platform, like a large circular raft made of floatable material (col. 3 lines 61-62, see also footnotes 1 & 2). The rejection is accordingly unwarranted by the Examiner's rationale due to relying upon yet a fourth mistaken assertion.

Fifth Mistaken Assertion. In a fifth specific assertion, the Examiner states (underlining added for emphasis): "Cluff disclose [sic] the liquid bath/pool (34) (col.3; lines: 44-47) that is in contact with an exterior of the support structure (32) (Figure 1 & col. 3; lines: 21-26), but fails to disclose the liquid bath as the coolant."

By characterizing feature (32) of Cluff as "support structure (32)," the Examiner reaffirms reliance on the contention that the support platform (32) of Cluff is an example of a support structure as required by the Appellant's claims. By this reliance, however, the Examiner's final contention in support of the rejection of Claim 1 is rendered impossible. The Examiner's final contention with respect to Claim 1 is that features of Laing would be combined with Cluff to achieve the required element (underlining added for emphasis): "the liquid bath is a coolant that provides primary cooling of the conversion device through thermal contact with an exterior of the support structure." The following remarks demonstrate why reliance on "support platform 32" as the required "support structure" renders this last contention impossible.

² As noted in footnote 1, "Platform 36" (col. 3 line 61) is a typographical error, and should actually be "Platform 32". Figure 1 shows item 36 to be a motor, as it is described at, e.g., col. 3 line 49 and col. 4 line 65. The platform is properly item 32, as it is illustrated in Figures 1 and 7, and as it is correctly described at col. 3 lines 38 and 44, col. 4 line 41, and col. 6 lines 5-6 and 25.

The platform 32 is in contact with the liquid of the bath on its bottom and part of its sides. However, as noted in preceding remarks, the conversion device(s) 42 are disposed within collector panel(s) 40, which in turn are mounted on the top of the support platform (32), which is above the surface of the water as may be seen in Figure 1. The collector panel(s) 40 thus are not in the liquid, nor are they in significant thermal contact with platform (32). It is therefore impossible for thermal contact between the liquid and the support platform (32) to cause any significant cooling of the conversion devices, let alone to cause primary cooling.

The fifth assertion is improper because it renders impossible the Examiner's contention that Laing can be combined to cause cooling of the conversion devices "through thermal contact with an exterior of the support structure." The Examiner's rationale thus fails to support the pending rejection of Claim 1 because it relies on this fifth improper assertion.

The Examiner's rationale in support of the rejection of Claim 1 would fail to justify the pending rejection if it relied on even one significantly incorrect assertion. The rationale set forth in the Examiner's Answer relies upon an astonishing five different assertions that are all seriously improper, and thus utterly fails to justify or support the pending ground of rejection.

The support platform (32) of Cluff is entirely unsuitable as the support structure required in Claim 1. At least due to the Examiner's reliance on the support platform (32) of Cluff, the disclosure relied upon by the Examiner to support the rejection of Claim 1 over Cluff in view of Laing entirely fails to describe the features required by Claim 1. The Examiner's Answer sets forth no alternative rationale to support the pending rejection, and therefore entirely fails to demonstrate that Cluff in view of Laing renders Claim 1 obvious.

Because the Examiner's contentions and assertions are so far from being correct, the previously submitted Appeal Brief takes pains to address not only the Examiner's contentions, but also all other disclosure in Cluff and Laing which might be argued as supporting a conclusion that Cluff in view of Laing renders obvious either of the Appellants independent claims. Disclosure exists in Cluff and Laing that comes much closer (than the disclosure pointed to by the Examiner) to supporting a rejection of Claim 1. Such disclosure is addressed in said Appeal Brief. This Reply Brief, however, only addresses the support upon which the Examiner again relies in the Examiner's Answer to support the rejection. Said Appeal Brief amply demonstrates that no other disclosure of Cluff and Laing renders obvious either Claim 1 or Claim 8.

For the record, Laing and Genequand together cannot remedy the failure of the disclosure of Cluff pointed to by the Examiner to render obvious Claim 1. Indeed, the Examiner's reliance on platform (32) of Cluff as the "support structure" required by Claim 1 is so confused as to preclude any sensible combination with other references.

Examiner's Mistaken Assertions In Respect Of Claim 8

As with Claim 1, a support structure is central to Appellant's independent Claim 8. Beginning at the first full paragraph of page 6 of the Examiner's Answer, the Examiner again relies upon the support platform (32) of Cluff as an example of the support structure required by Claim 8. The Examiner's reliance is misplaced for substantially similar reasons as are set forth above with respect to Claim 1. The following particular examples serve to illustrate that Cluff's support platform (32) is entirely incompatible with numerous features of the support structure required by Claim 8.

First and Second Assertion Mistakes Regarding Claim 8. The Examiner asserts that Cluff discloses (underlining added for emphasis): "a mounting a conversion device (43) at a mounting site within a support structure (32) having an elevation rotation axis." This is incorrect, first, because Cluff's support structure (32) does not have an elevation axis. It has only an azimuth axis, about which it is rotated to point to the compass direction (azimuth) of the sun (see, e.g., col. 3 lines 44-51, particularly line 51). The elevation rotation axes in Cluff's Figure 1 are in the collector panels (40), which are separate entities disposed on top of the support platform (32) of Cluff (see, e.g., col. 4 lines 52-61, col. 6 lines 3-10). To point to the sun's elevation, the large support platform (32) would need to be tilted, which is impractical. That is why collector panels (40) must be controlled to adjust for the elevation of the sun.

The Examiner's assertion is incorrect, second, because Cluff does not describe mounting conversion devices within the support structure (32). There is nothing within the support platform (32) except flotation and structural material (see col. 3 line 61 to col. 4 line 5)³. Far from being "within" the platform 32, the photovoltaic devices are in a completely different structure (collector panel 40) which is "arranged on [the top of] the platform 32" (Figure 7, col. 4 lines 39-41). Being inside a device that is disposed on the platform 32 is simply not the same as being disposed within the structure, as required by Claim 8.

³See footnote 2, *supra* on page 7.

Thus, the Examiner's assertions with respect to element (a) are mistaken for two important reasons, and cannot properly support the rejection of Claim 8.

Third Assertion Mistake Regarding Claim 8. The Examiner further asserts that Cluff discloses (emphasis added): "aligning the support structure (32) so that the elevation rotation axis (35, 45) is at an azimuth alignment angle with respect to a source of light energy (col.4; lines: 54-58)." As remarked upon above with respect to element (a), the support platform (32) of Cluff has no elevation rotation axis, but only an azimuth rotation axis. Moreover, items 35 and 45 of Figure 1 are "moving mechanisms," not axes. Item 35 is a "platform moving mechanism" comprising a motor 36, pulley 38 and drive roller 37 (col. 3 lines 47-51), while item 45 is a motor that controls the elevation angle, though of the collector panels 40 that are mounted on top of the platform 32, rather than platform 32 itself (see Figure 1). It should be abundantly clear that a "moving mechanism" is not in any way an example of an axis of rotation. An axis of rotation is an imaginary line about which an object rotates. A moving mechanism is not any sort of imaginary line. Thus, this assertion is incorrect.

Fourth Assertion Mistake Regarding Claim 8. The Examiner asserts that Cluff discloses (emphasis added): "e) rotating the support structure (32) about the elevation rotation axis to align the incoming light axis toward the source of light energy (col.6; line: 3-10)."

As noted twice in the remarks set forth above, Cluff's support platform (32) does not have an elevation rotation axis. Instead, the separate and distinct collector panels 40 have elevation rotation axes. The support structure 32 is a large floating disk that would need to be lifted out of the water to be pointed toward the morning sun. As such, Cluff certainly does not suggest "rotating the support platform (32) about the elevation rotation axis," as required by Claim 8. Instead, the collector panels 40 are rotated about their elevation axes to point toward the sun as the sun's elevation changes. Collector panels 40, however, do not float in the pond, as required for the support structure of Claim 8. This assertion is thus also seriously mistaken.

Each of the errors noted above reflect a wholesale misunderstanding of the nature of the support platform (32) as described in Cluff, as compared to the support structure required in Claim 8 (or in Claim 1). Due to this misunderstanding, the rationales set forth by the Examiner are extremely far from properly supporting the rejections of Claims 1 and 8 over Cluff in view of Laing. The Appellant's Appeal Brief addresses other ways in which Cluff and Laing might be

asserted to render obvious any of the Appellant's claims. However, this Reply Brief exclusively addresses the rationale for support of the rejections that has been reiterated by the Examiner in the Examiner's Reply.

In summary, the Examiner's rationale in support of the rejections of Claims 1 and 8 over Cluff in view of Laing relies on a "support platform 32" in Figure 1 of Cluff that has almost none of the characteristics required by the support structure of Claim 1 or Claim 8. The rationale relied upon by the Examiner is so badly flawed that any consideration of finer points distinguishing the Appellant's claims from the combination of Cluff and Laing is rendered nearly impossible. Even though the Appellant's Appeal Brief addresses such finer points (after first noting the flaw in the Examiner's stated rationale), the Examiner's Answer entirely fails to respond to the finer issues remarked upon in the Appellant's Appeal Brief.

Conclusion

The Appellant's representative has repeatedly pointed out that the "support platform 32" of Cluff bears no sensible relationship to the support structure required by any of the Appellant's pending claims (see, *e.g.*, the first full paragraph on page 9 of the Appeal Brief). In the Appeal Brief, the Appellant demonstrated generally that Cluff in view of Laing fails to render obvious any of the pending claims, considering all reasonable interpretations of the references. In this Reply Brief, the Appellant demonstrates only the failure of the Examiner's Reply to correctly identify disclosure in Cluff and Laing that could render obvious either Claim 1 or Claim 8.

Respectfully submitted,

Date: 3/18/2009
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